

**TROPICAL  
STORM NORRIS**  
BEST TRACK TC-19  
09NOV-11NOV 1983  
MAX SFC WIND 50 KTS  
MINIMUM SLP 994 MBS

**LEGEND**

- 06 HOUR BEST TRACK POSIT
- A SPEED OF MOVEMENT
- B INTENSITY
- C POSITION AT XX/0000Z
- ... TROPICAL DISTURBANCE
- ... TROPICAL DEPRESSION
- TROPICAL STORM
- TYPHOON
- ◆ SUPER TYPHOON START
- ◇ SUPER TYPHOON END
- ◇◇ EXTRATROPICAL
- ... DISSIPATING STAGE
- ★ FIRST WARNING ISSUED
- ☆ LAST WARNING ISSUED

TROPICAL STORM NORRIS (19W)

On the day following the final warning on Super Typhoon Marge, a surface circulation appeared on visual satellite imagery to the east of the front associated with the remnants of Marge. This circulation was located in a data sparse area and had very little associated convective activity. Although depicted as small and unimpressive on the satellite imagery, the circulation quickly evolved into a midget tropical storm. A TCFA was issued at 080849Z when the deformation of the low-level cloud-lines on satellite imagery indicated that the circulation was well organized. A reconnaissance aircraft was dispatched on the following morning to investigate. When the aircraft arrived at the expected position of the circulation, it encountered light and

variable winds with no indication of the presence of a surface circulation. Upon receipt of this report from the aircraft, the expected position was revised on the basis of updated satellite imagery and the aircraft was vectored eastward to a new position. Only 130 nm (241 km) to the east-southeast of its previous position, the aircraft encountered a well-developed tropical storm with 50 kt (26 m/s) winds and a circular eye 15 nm (28 km) in diameter. The first warning on Tropical Storm Norris was issued upon receipt of this report. Figure 3-19-1 shows Norris at the time of the reconnaissance mission. Although an eye is not apparent on satellite imagery, Norris does appear as a highly organized (though extremely small) tropical storm.

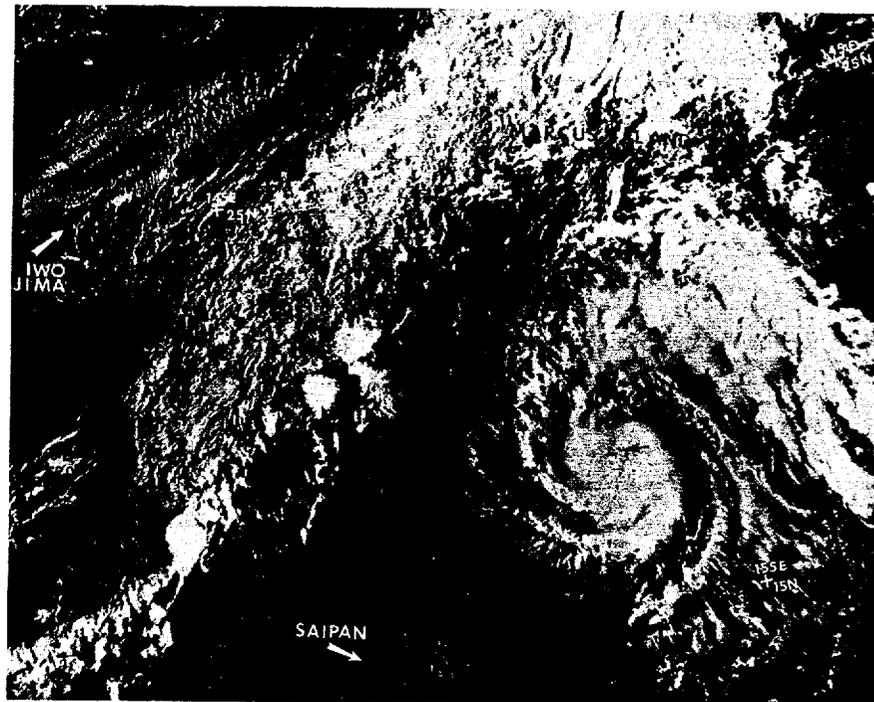


Figure 3-19-1. Tropical Storm Norris at maximum intensity just prior to recurvature. Less than 48 hours later, Norris was completely absorbed by the front which appears to the left in the picture (082211Z November NOAA & visual imagery).

The position of Norris, to the east of an advancing front, led to a straight-forward forecast of recurvature and dissipation which verified well. Less than three days after its initial detection, Norris had been completely absorbed by the advancing front and was no longer identifiable as a distinct entity.

Post-analysis revealed that Norris developed rapidly from a pre-existing disturbance of small proportions. Figure 3-19-2 shows Norris at 080931Z, near the time of issuance of the TCFA. Although there is little convective activity associated with the circulation, the organization of the low-level wind field is evident in the alignment of the cloud lines. This

low-level banding is also evident in visual satellite imagery 12 hours prior to the TCFA. However, imagery prior to that shows only a small unorganized disturbance moving rapidly northwestward. Norris' rapid development was, in part, due to favorable upper-level conditions which existed at that time. Figure 3-19-3 shows that Norris developed in an area of light but highly divergent upper-level flow.

Norris never posed a threat to any major land mass but was a subject of great concern to shipping in the area. Fortunately, Norris' movements were accurately forecasted and the ships involved were able to avoid the tiny but powerful circulation.



Figure 3-19-2. Norris at the time of issuance of the TCFA (080931Z November NOAA 8 infrared imagery).

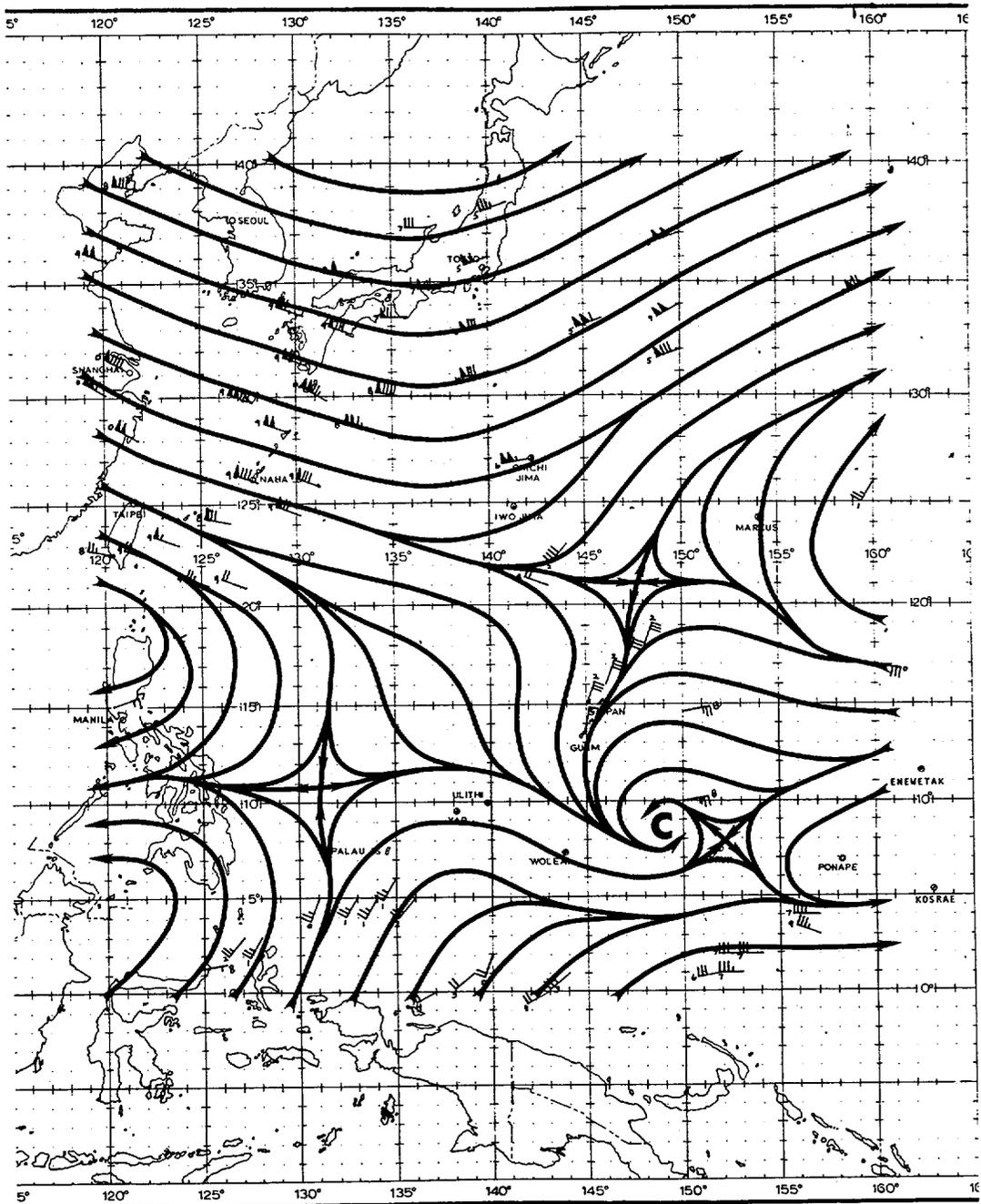


Figure 3-19-3. Norris formed in an area of light but highly divergent upper-level flow to the northeast of a TUTT cell (081200Z November 200 mb analysis).